Gouley (J. W. S.)

Retention of Urine from Prostatic Obstruction in Elderly Men:

Its Nature, Diagnosis, and Management.

BY

JOHN W. S. GOULEY, M. D.,

SURGEON TO BELLEVUE HOSPITAL.

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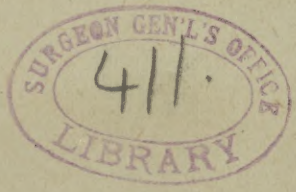

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RETENTION OF URINE

FROM PROSTATIC OBSTRUCTION IN ELDERLY MEN:

*ITS NATURE, DIAGNOSIS, AND MANAGEMENT.**

By JOHN W. S. GOULEY, M. D.,
SURGEON TO BELLEVUE HOSPITAL.

While urethro-vesical obstruction occurs in young and middle-aged men from bladder and prostate stones, from acute prostatitis, from contracture of the vesical neck due to the extension of chronic urethritis, or from malignant disease of the prostate, it should not be confounded with the gradual and slow process of prostatic obstruction which rarely begins to impede urination before the age of fifty-five and is as rarely known to begin after the age of seventy.

To the question, What is it that causes this impediment to urination in elderly men? a common but incomplete answer is enlargement of the prostate. This answer is incomplete because of its failure to specify the kind of enlargement, for it is known that elongation and also uniform general enlargement of the prostate do not obstruct the urethro-vesical orifice or impede urination. Very large pros-

* Read before the New York State Medical Association, October, 1890.

tates have been discovered after death in elderly men who had never suffered the least inconvenience in urinating and whose bladders were in a normal condition. On the other hand, small prostates—*i. e.*, of even less bulk than natural, with only moderate increase of the lower isthmus, sufficiently obstruct the urethro-vesical orifice to give rise to stagnation of urine, cystitis, and even to complete retention of urine.

It is then only when the prostate is unequally enlarged that it interferes with urination, and to this even there are exceptions, for multiple tumors at its base sometimes cause true incontinence of urine, as do other forms of prostatic enlargement which prevent the closure of the urethro-vesical orifice and allow the urine to flow constantly from the bladder as fast as it trickles out of the ureters. In this connection, enlargement of the prostate, conveying as it does only a general notion that the organ is in an abnormal state, needs to be specified, and it can ordinarily in some measure be specified after due observation of its immediate effects; for instance, an elderly man from whom normal urine is constantly dribbling and who suffers no other inconvenience presumably has true incontinence of urine due to some form of enlargement of the prostate which keeps open the urethro-vesical orifice, while another elderly man from whom fœtid purulent urine is constantly dribbling presumably has chronic retention of urine due to urethral or to urethro-vesical obstruction from some one of the forms of prostatic enlargement specified below, urethral stricture or the impaction of a calculus in the urethra having been excluded.

Of the several forms of unequal enlargement of the prostate which obstruct the urethro-vesical orifice the following only need now be named: (1) General enlargement with excessive development of the posterior third of the

lower isthmus, called supra-montanal portion by Mercier and third lobe by Home; (2) enlargement of the posterior third of the lower isthmus without apparent increase in the rest of the prostate, sometimes called centric enlargement; (3) enlargement of one lobe which encroaches upon the opposite lobe and obstructs the prostatic urethra; (4) unequal enlargement of both lobes, rendering the prostatic urethra tortuous and obstructing it; (5) multiple intra-urethral tumors; (6) intra-vesical enlargement of one lobe. Such are the principal forms of prostatic enlargement that impede urination.

These alterations of structure differ somewhat in their component elements. The majority of cases are diffuse leiomyomata, with a very small quantity of fibrous tissue accompanying the blood-vessels, and ectasia of the prostatic crypts, the sympexia of the crypts often dying and becoming coated with phosphate of calcium, and consequently increasing considerably in volume. They are those prostates which are softer than normal and which attain the greatest size. In some cases there are multiple circumscribed leiomyomata. Other cases are of diffuse and circumscribed inomata. They are the small, hard prostates which sometimes contain retention epithelial cysts. Adenomata are not so frequently found as are the myomata and inomata, and are circumscribed.

The first effect of urethral or of urethro-vesical obstruction is stagnation of urine in the bladder. The stagnant urine, even a few drachms, soon decomposes, and, acting as an irritant foreign body, gives rise to cystitis. The inflamed bladder then makes vigorous but vain efforts to expel this offending urine, in consequence of which its muscular coat increases in thickness. In certain cases the larger part of the stagnant urine is expelled, but the small quantity which remains is sufficient to induce such frequent

spasmodic contractions of the bladder that the capacity of this organ gradually decreases until it is reduced to only two or three ounces. In other cases the bladder is dilated and capable of containing a quart, or even several quarts, of stale urine. In either class of cases, unless artificial relief be promptly obtained, the consequences are of the gravest order. The urine, thus dammed up, leads to dilatation of the ureters, ureteritis, pyelitis, nephritis, and death.

It may be asked, Is it possible to make a reasonably accurate diagnosis of these several kinds of prostatic obstruction? Yes, at least in four of the six just enumerated, and it is of no little practical consequence that they be differenced, for some of them require modifications in their surgical management.

The early manifestations of prostatic enlargement do not always cause anxiety and are often overlooked. The patient, having perhaps only vague notions of his condition, generally misinterprets the gradually increasing frequency of the calls to urination, does not perceive that his urine is slimy, pays little attention to the slight sensation of scalding during urination, is not aware of the significance of the changes in the mode of propulsion of the urine, notably the vertical direction of the jet, fails to notice the diminished size of the stream whose sudden cessation induces him to think that the act of urination is accomplished, when, to his surprise, more urine is expelled drop by drop, to be succeeded by the former perpendicular stream and again by the drops, and does not solicit the advice of his physician until all these symptoms are greatly intensified or until he is already distressed by complete retention of urine.

Of the several steps in the diagnosis of abnormal urination and retention of urine due to prostatic enlargement, chiefly the following are employed:

The history of the patient's prior ailments, of his actual

infirmity, and of his habits of life, having been obtained, an inspection of his general condition is made. His mode of urinating, if he can urinate, is noted, and his urine is duly examined. Then follows physical exploration.

The first step in this exploration is palpation, then percussion of the hypogastric region. If there is no tumefaction, if percussion is clear, it will be inferred that the bladder is empty or nearly so; and if at the same time it is noticed that normal urine is constantly flowing, it will be fair to infer that there is incontinence rather than retention of urine, although the involuntary flow of urine indicates oftener its retention than its incontinence; but if there is a rounded, tense, and painful tumor, dull or flat under percussion, and with this a constant desire to urinate, the inference will be that there is acute retention of urine. If, however, there happens to be a diffuse, slack swelling with fluctuation, also flatness under percussion, a dull instead of an acute pain, and no urgent desire to urinate, but slobbering of urine, the existence of chronic retention of urine will be inferred.

It is proper to state that, while percussion possesses some value in the diagnosis of retention of urine, it is not to be absolutely depended upon. For example, flatness on percussion does not necessarily indicate the presence of urine in the bladder, for, in the hypogastric region, flatness may be owing to a solid tumor in front of the bladder. Circumscribed flatness and fluctuation may indicate a pelvic abscess as well as stagnation of urine in the bladder, with more or less distention. Resonance on percussion does not indicate absence of retention of urine, for such resonance may be owing to the presence of knuckles of small intestine between a distended bladder and the anterior abdominal parietes.

The second step in physical exploration consists in mak-

ing a digital examination of the prostate through the rectum, by which some idea may be formed of the size and consistence of the organ. As a general rule, hard prostates are little if at all enlarged, while soft prostates are large and sometimes attain enormous dimensions. By this same digital examination, the form as well as the size of the prostate is estimated. It may be simply elongated; one of its lateral lobes may be larger than the other; it may be uniformly enlarged; it may be nodulated, and this suggests the existence of multiple tumors; or it may not be larger than natural, but its apex may be rounded instead of being insensibly lost in the membranous region of the urethra. These are the principal circumstances to be noted from a rectal exploration.

The third step in physical exploration consists in ascertaining the particular kind of prostatic enlargement which affects urination. The exploration is made by introducing certain metallic instruments through the urethra into the bladder. This method was suggested and practiced by Mercier many years ago, and is as follows: A rectangular, short-beaked metallic sound (Fig. 1) or catheter is slowly

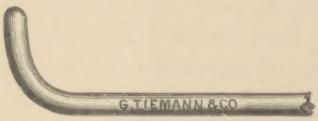

FIG. 1.—Mercier's rectangular sound.

introduced until it reaches the prostatic region of the urethra. If then the handle turns to the right of the patient, it is because the point of the instrument has been deflected by an intra-urethral projection of the left lobe of the prostate, and *vice versa*. If first to the right and then to the left half an inch or thereabouts farther back, it is because the point of the instrument is deflected first by a pro-

jection of the left and then by a projection of the right lobe of the prostate, showing unequal enlargement of both lobes. If the sound meets no impediment until it has nearly reached the bladder, and then its blunt heel encounters an obstacle, it is because there is enlargement of the posterior third of the lower isthmus (supramontanal portion, third lobe). By moderately depressing its handle and gently pushing the sound onward, it enters the bladder. Its beak is then reversed, and turned to the right and to the left in order to form some idea of the general character of the obstacle, if there be intravesical projection.

But for greater precision the cysto-pylometer (Figs. 2 and 3) may be used. By means of this simple instrument the thickness of the obstacle can be accurately measured, and it can be ascertained if this consist of a crescentic valvule, of a "bar," or of a sessile or a pedunculated tumor.

Fig. 2 represents the first cysto-pylometer devised by the author. It is so constructed that the vesical extremity of the male blade can easily override any urethro-vesical barrier without giving pain to the patient. This construction of the jaw of the male blade rendering the prehensile part a trifle too short, a new pylometer (Fig. 3) with the male prehensile part one third longer was lately contrived with the view of remedying the defect of the first instrument, but in this new pylometer the inclination of the jaw is so abrupt that it is necessary to observe the greatest care in opening the jaw of the instrument to carry the male part over a urethro-vesical barrier.

The several forms of prostatic enlargement already indicated give rise to acute and to chronic retention of urine.

By acute retention of urine is meant a sudden hindrance to the expulsion of urine from the bladder. It is characterized by great pain in, and an almost intolerable sense of distention of, the bladder; by a scalding sensation in the

urethra; and by a constant desire to urinate which seems incessantly on the point of without being gratified.

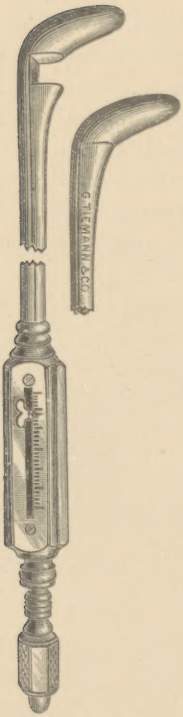

FIG. 2.—The author's first cysto-pylometer.

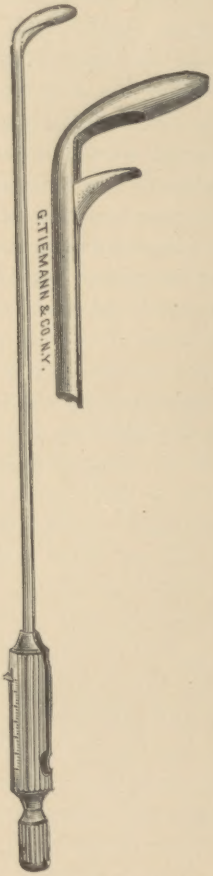

FIG. 3.—The author's second cysto-pylometer.

Acute retention of urine occurs as well among elderly men with incontinence as among those who have no hin-

drance to normal urination, or only a very slight impediment—*i. e.*, the beginning of prostatic obstruction.

The mechanism of acute retention of urine is as follows: After exposure to cold, venereal excess, or a debauch, the pelvic vessels sometimes become so gorged with blood that the prostate swells, principally in the direction of the urethra and urethro-vesical orifice, to the extent of occluding the passage. This sudden engorgement is soon followed by exudations which do not always entirely disappear. Resolution is occasionally very slow, and even fails; the swollen prostate is then little, if at all, diminished, and acute retention may thus pass into chronic retention of urine.

Acute retention of urine is ordinarily preceded by dysury for an hour or two. Urination is unduly frequent, irregular, scanty, and accompanied with scalding pain in the whole urethra until strangury occurs; then urine mixed with mucus and blood escapes only in drops at each spasmodic contraction of the bladder. Finally, a few hours after the exposure or debauch, comes ischury. The patient is now unable to discharge a single drop of urine and is tormented with violent straining, which favors the escape of fæcal matter and even causes prolapse of the rectum. The passage being entirely occluded, the urine accumulates from hour to hour until the bladder is greatly overdistended and loses its power of contracting, generally for a time only, sometimes indefinitely. At the expiration of the first day the suffering is still very great, the patient becomes more restless, feverish, and thirsty; his face is congested from the constant straining, his skin is dry, and his intestines are distended with gas. On the second day the pain extends to the lumbar regions, and the dryness of the skin is succeeded by profuse perspiration having a urinous odor. The urine then begins to dribble, and this is delu-

sive to the patient and to his family, who imagine that spontaneous relief has come, when in truth the urine is still accumulating in the bladder, a little only slobbering out from overflow. The consequence of this misinterpretation of a symptom is failure to invoke medical aid until it is deemed proper to repress what is wrongly believed to be a superabundant flow of urine. Meanwhile the patient lapses into a muttering delirium, his utterances being obscured partly by the extreme dryness of his tongue and mouth. The secretion of urine is now lessened (oligury), and may soon be abolished (anury), although the bladder is distended to the extent of four or five pints. In some cases the physician is not summoned until many nauseous, useless, and often hurtful nostrums and diuretics have been administered.

In the management of acute retention of urine to temporize or to rely solely upon the use of medicaments in any case is to place the life of the patient in great jeopardy. Having informed himself of the circumstances connected with the case and having made a preliminary examination, the physician selects the form of catheter best suited and forthwith introduces it, allowing the urine to flow very slowly, and every few seconds stopping up the distal end of the catheter. If called during the first twenty-four hours, he may empty the bladder at one sitting of three quarters of an hour, but if on the second day, he should draw off slowly only about one third of the contents of the bladder, and after this once every two or three hours he should introduce the catheter and allow more urine to flow, until in a day or two he finally empties the bladder, or he may leave in the catheter with its distal end closed and direct that six ounces be drawn off every two hours. The reason for these precautions is that the too precipitate evacuation of an overdistended bladder is sometimes fol-

lowed by distressing and dangerous effects, such as profuse hæmorrhage from its mucous membrane and consequent general cystitis, polyury, etc.

The after-treatment should accord with the particular necessities of the case. The use of the catheter should not be abandoned until the patient is able to empty spontaneously his bladder, which should not again on any account be allowed to become overdistended. If the swelling of the prostate does not diminish, the use of the catheter should be continued indefinitely. In the mean time the urine should be kept bland by the internal administration of diluents, and the bladder should be irrigated once daily with a warm boric-acid solution, three grains to the ounce, with the addition of one fourth of peroxide-of-hydrogen solution.

By chronic retention of urine is meant a gradual and slow hindrance to the expulsion of urine from the bladder. Its characters are not generally perceived by the patient and are not always manifest to the physician, partly because this retention of urine does not become complete for many weeks or months, or even may never become complete. When incomplete it is at first characterized by much irritability of the bladder, which is constantly wrestling against the obstruction to force out the urine; but this subsides in the course of a few months, when the sensibility and contractility of the bladder are somewhat impaired, as evinced by less painful, less urgent, and less frequent urination, and by the stream being small, feeble, frequently interrupted, and replaced by a succession of drops. When the retention is complete it is characterized by inability on the part of the patient to expel a single drop of urine.

As already stated, chronic retention of urine is the outcome of gradual, progressive, but ordinarily incomplete closure of the urethra or urethro-vesical orifice by unequal

enlargement of the prostate which obstructs the canal. From being incomplete, this retention of urine becomes complete when the enlarged prostate further swells to the extent of closing the passage. It again becomes incomplete when from overdistention of the bladder the urethro-vesical orifice opens sufficiently to allow the urine to overflow and slobber out.

The differential diagnosis of acute and chronic retention of urine having been set forth in a paper read before the Medical Society of the County of Kings and published in its proceedings in January, 1882, will not now be discussed.

Grave errors are occasionally made in certain cases of extreme distention of the bladder from neglect to use the catheter as a means of diagnosis, for in elderly men the urine sometimes accumulates so slowly and gradually that the vesical distention causes little or no pain, or the slight pain is attributed to something else, and increases, in the course of weeks or months, to such an extent as to mislead the unwary. Such cases have been confounded with ascites, with abdominal tumors connected with the omentum, intestines, liver, or kidneys, with hydatids, with hydronephrosis, and even with fæcal impaction. In one instance a trocar was plunged into the abdomen, two inches below the umbilicus, the physician believing the case to be one of hydatid cysts, and seven pints of fluid drawn, which proved to be urine.

To the question, What is the most suitable catheter in cases of retention of urine from prostatic obstruction? the reply is that one catheter can not answer in all cases. The catheter should, as far as possible, be adapted to a particular kind of obstruction. Therefore the physician should be supplied with several very different catheters, and, after due exploration, as before indicated, be able to select one

which is adapted to the particular deformity found in the prostatic region.

For exploration the metallic instruments already described should be used, but after this, and for evacuative catheterism, metallic catheters should be avoided, for it is by their use that false passages are so commonly made. The most dangerous among these is the so-called prostatic catheter of great curve and extra length. The main difficulties in catheterism, as a general rule, are not due to increased length of the prostatic urethra, but to its several deviations; and a rigid catheter of great curve, even when used with caution, ordinarily fails to pass, besides being very apt to tear the urethra.

The catheters which are indispensable in the physician's armamentarium, all but one—*i. e.*, the soft, vulcanized India rubber "velvet-eyed" catheter—consist of a tubular fabric of silk, coated with a pliable material, with a single eye close to the vesical extremity; the form of this extremity being in accordance with the particular use to which each instrument is designed. The most useful are the five forms indicated below.

The catheter (Fig. 6) woven upon a curved stylet is well adapted to cases of moderate supramontanal (centric) enlargement, or of urethro-vesical bars. When greater curvature is needed, as in a case of very large tumor of the supramontanal region, or when a false route impedes catheterism, a stylet may be inserted, and the catheter introduced after the method of William Hey. This efficiently replaces the so-called prostatic catheter. All the pliable catheters are from twelve to fourteen inches in length.

The olivary catheter (Fig. 7) is also woven upon a curved stylet; but the straight olivary catheter, very pliable for an inch from the point to the eye, is useful in cases of extremely tortuous urethræ from unequal enlargement of both prostatic lobes.

The elbowed catheter of Mercier (Fig. 4) is particularly well adapted to cases of intra-urethral tumors, of unilateral enlargement, or of unequal enlargement of both

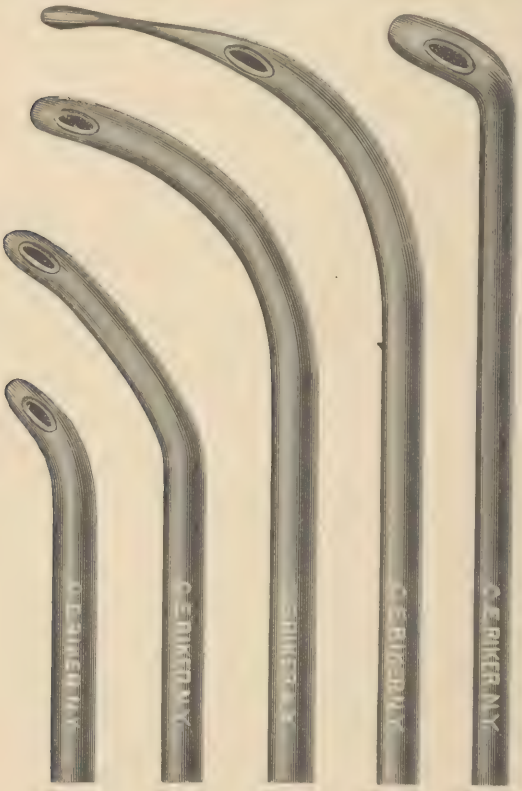

Fig. 4. Fig. 5. Fig. 6. Fig. 7. Fig. 8.

lobes of the prostate, but is also successfully used in cases of urethro-vesical barriers.

The crutched catheter (Fig. 8), more angular than the elbowed, answers well in cases of great enlargement of the

supramontanal region, the heel instead of the point of the instrument coming in contact with and gliding over the obstacle.

The double-elbowed catheter of Mercier (Fig. 5) is adapted to cases of enlargement of the superior isthmus, together with supramontanal increase, causing great depression of the floor of the prostatic sinus.

Respecting the size of the catheters, the question, Should they be small or large? is very commonly asked. The answer is that they should be neither large nor small, but adapted to the particular urethra to be catheterized. A catheter of full size for a urethra under the average is too small for a urethra of extraordinary large caliber. A No. 14 (English) is small for the latter, and entirely too large for the former, to which a No. 7 (English) is likely to be much more suitable. These, however, are extreme cases. The most convenient size to the physician and to the patient, one that strikes a fair average, is No. 9 (English). It is rare to find urethræ that will not admit a No. 9, particularly in cases of stagnation of urine from prostatic obstruction, stricture being excluded. Many patients who are obliged to catheterize themselves labor under the delusion that small catheters are safest and give least pain. To the use of small catheters may be ascribed the majority of prostatic false routes and the frequent attacks of urethritis and orchitis from which auto-catheterists suffer. The best sized and safest catheter for each individual is the catheter that moderately fills and therefore does not stretch the urethra. Such an instrument gives less pain than the too large or the too small catheter.

The India-rubber "velvet-eyed" catheter is ordinarily the safest for general use by the inexperienced and for auto-catheterism, but its long-continued use upon or by the same patient is not advisable. The security felt by the patient

is often a source of danger, for he is soon heedless of the precautions advised by the physician and suffers much in consequence. How much more frequently the physician is called upon to remove from the bladder fragments of or entire India-rubber catheters than of other firmer instruments! But, aside from these accidents, the urethra is often greatly irritated by the rubber catheter, not on account of this material itself, but of the carelessness, boldness, and undue frequency of its use, which come of its easy introduction. Painstaking, prudent, and intelligent patients soon acquire sufficient skill in the use of any of the several pliable catheters and learn to keep them in good order.

An important advantage of the India-rubber catheter is that it can be kept in an aseptic condition without injury to its structure. Very lately Vergne, a Paris manufacturer, has announced that he has succeeded in making pliable catheters which are susceptible of being rendered aseptic without injury.

It frequently happens that the physician is called upon to relieve patients from retention of urine when ordinary catheterism is impossible by reason of false passages in the prostatic region. In such cases the common practice has been to make a suprapubic puncture with an ordinary trocar and insert a catheter or a silver tube, to be opened as often as necessary for urination. Twenty years ago capillary puncture with aspiration was introduced to the profession by Dieulafoy, and this novelty soon became the fashion. Many successful cases were reported, and capillary puncture with pneumatic aspiration was to be *the* operation in retention of urine. Although at first no reference was made to accidents, in a few years the vogue of the process was on the wane; now it is employed with more discrimination, and only to relieve extreme distention once or twice,

and not ten, twenty, or thirty consecutive times in the same case. Capillary puncture with pneumatic aspiration is an excellent resource in medicine and surgery; it can not be too highly praised, but its abuse should be loudly decried.

No kind of puncture of the bladder ever can remove a false route, and capillary puncture is not so safe a process as was at first believed. The consequences of the escape of a few drops of urine in the prævesical connective tissue have been so disastrous in a number of cases as to deter cautious physicians from employing this method of relief except under circumstances of the greatest urgency; but there is an equally forcible objection to its general employment—to wit, a simple, safe, and efficient procedure has existed for the past forty years. Why it has not been more frequently employed is not apparent, but it is nevertheless valuable. In the year 1850 Dr. Mercier published in the *Union médicale* an account of his invaginated catheter for use in cases of prostatic false routes. Descriptions and drawings of the instrument have appeared in different books and periodicals, but little heed seems to have been otherwise taken of this precious device. It may be fairly stated that in ninety-five per cent. of cases of prostatic false routes the invaginated catheter can be successfully applied. The instrument (Fig. 9) as now made consists of two catheters—one metallic, the other non-metallic. The first or female part is a thin-walled No. 10 (English) silver catheter eleven inches long, very slightly curved, and having in its concavity, about half an inch from the point, an oval eye five eighths of an inch in length and three sixteenths in breadth. From the vesical extremity of the eye is an inclined plane, which is lost in the floor of the opening at the distance of a quarter of an inch, serving to tilt up the point of the male part. This male part is a flexible but firm "gum" catheter (No. 7 English) eighteen inches long, fitting loosely in the

lumen of the female part, and having a single eye an eighth of an inch from its point. The way to use the invaginated

Fig. 9.—Mercier's invaginated catheter.

catheter is to introduce the male into the female part as far as the eye of the latter, then to pass the instrument as far as the obstacle and engage the point of the metallic part in the false route, and finally project the male part, which will override the false route thus blocked and enter the bladder. If no urine should flow, it would be owing to closure of the eye of the male part by a blood-clot, which might be forced out by the injection of a little water through the male catheter. The female part can then be withdrawn and the male left in as long as may be required; this is the reason for the increased length of the male part.

In twenty cases the author has resorted to divulsion of the prostatic false route during catheterism with the invaginated catheter. This process, though comparatively easy, is not advisable except in the most experienced hands. While the immediate result has generally been good, it has not been lasting, for he has not known spontaneous urination to continue more than two years in any case after this operation.

The management of ordinary cases of chronic retention of urine from prostatic obstruction, without false routes,

may be summarized as follows: Catheterism having been successful, only a part of the stagnant urine should be drawn off, and the bladder not completely emptied for a day or two, and sometimes not for a week, but the quantity of retained urine should be lessened every day. Then the bladder should be daily washed. In many cases it is not wise to begin at once with irrigations, or to use them too frequently. Bladders that have long contained purulent, slimy urine do not bear the contact of limpid fluids of low specific gravity well at first. It is therefore necessary to increase the density of the water used for vesical irrigation in such, and, indeed, in the great majority of cases. A good formula for vesical irrigation is the following, after dilution of one in twenty:

℞ Hydrarg. chloridi corrosivi... gr. v;
Ammonii chloridi..... gr. xx;
Spir. gaultheriæ..... fl ℥ ss.;
Acidi borici..... ℥ j;
Glycerini..... fl ℥ viij. M.

To half a fluidounce of this solution are added seven fluidounces of warm water (110° F.) and two fluidounces and a half of peroxide-of-hydrogen solution.

These ten ounces of fluid are sufficient for four washings of two ounces and a half at each sitting. Only in very exceptional cases should the bladder be irrigated more than once a day. After the bladder has been completely emptied, evacuating catheterism should be employed every five or six hours, except in cases of contracture with diminished capacity, when the catheter may be needed every two hours. In these cases it is necessary to resort to gradual hydraulic dilatation, a very delicate operation, which is successful when there has not been too long continued cystitis with connective-tissue sclerosis.

The general treatment in cases of stagnation of urine

should be conducted in accordance with sound hygienic principles and little else. Opium, belladonna, or hyoscyamus should be used only to relieve extreme pain and spasm. The urine should be kept bland by the use of diluent beverages and the rectum completely emptied every day, for, next to stagnant urine in the bladder, the accumulation of fæces in the rectum is the greatest source of discomfort. A little generous wine at dinner, and a drink of brandy or whisky and water at bed-time, may be allowed without fear of causing local irritation; it is only in excess that alcohol is hurtful in these as in all circumstances.

The question of prostatotomy and prostatectomy, internal and external, will not now be discussed, but a few words will be said of circumstances under which a portion of the prostate may be excised during suprapubic cystotomy for a tumor or stone. When epicystotomy has become neces-

FIG. 10.—The author's intravesical prostatectome.

sary for the extraction of a stone or the ablation of a morbid growth, it may be proper to excise a portion of the prostate or a pedunculated prostatic tumor projecting in the bladder and interfering with urination. Pedunculated tu-

mors can be excised by means of scissors with rectangular blades; but if a bar or median outgrowth is to be cut, the rectangular intravesical, suprapubic prostatectome (Fig. 10), constructed on the principle of the hawk-bill scissors of Dr. Skene, will be found to answer the purpose of excising as considerable a portion of the prostatic obstruction as may be desired, leaving a V-shaped chink for the escape of urine.

The removal of a urethro-vesical tumor of the prostate during suprapubic lithotomy was done about half a century ago by Amussat.

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